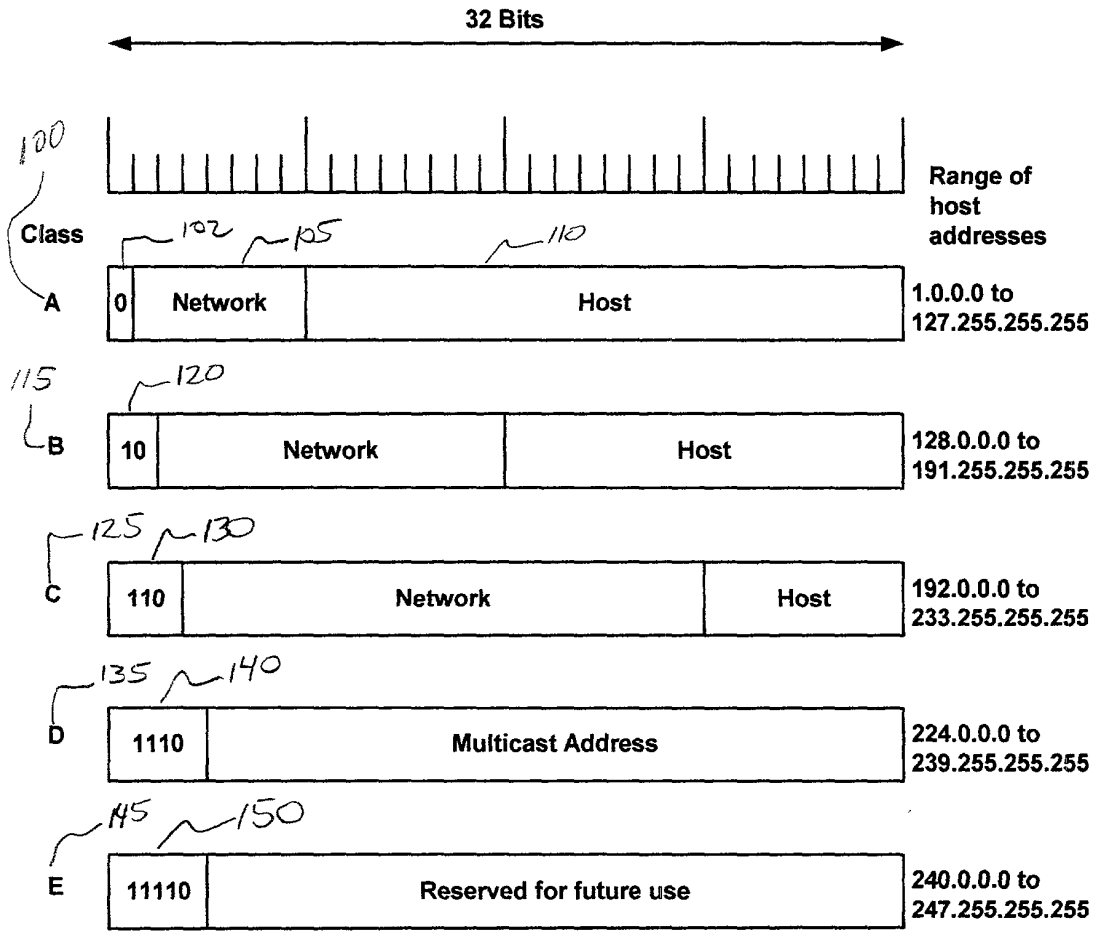

FIG. 1 - Prior Art

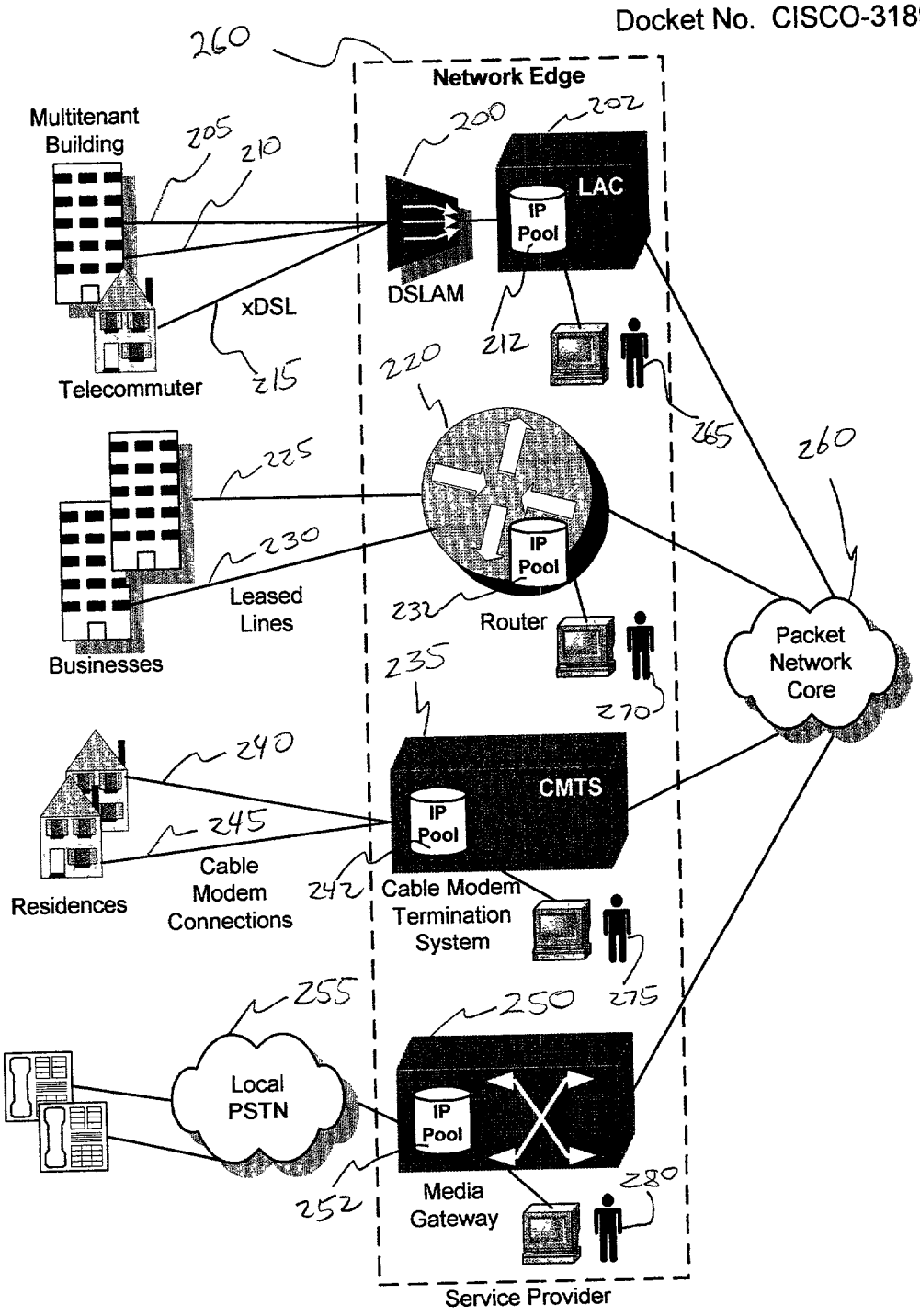

FIG. 2 - Prior Art

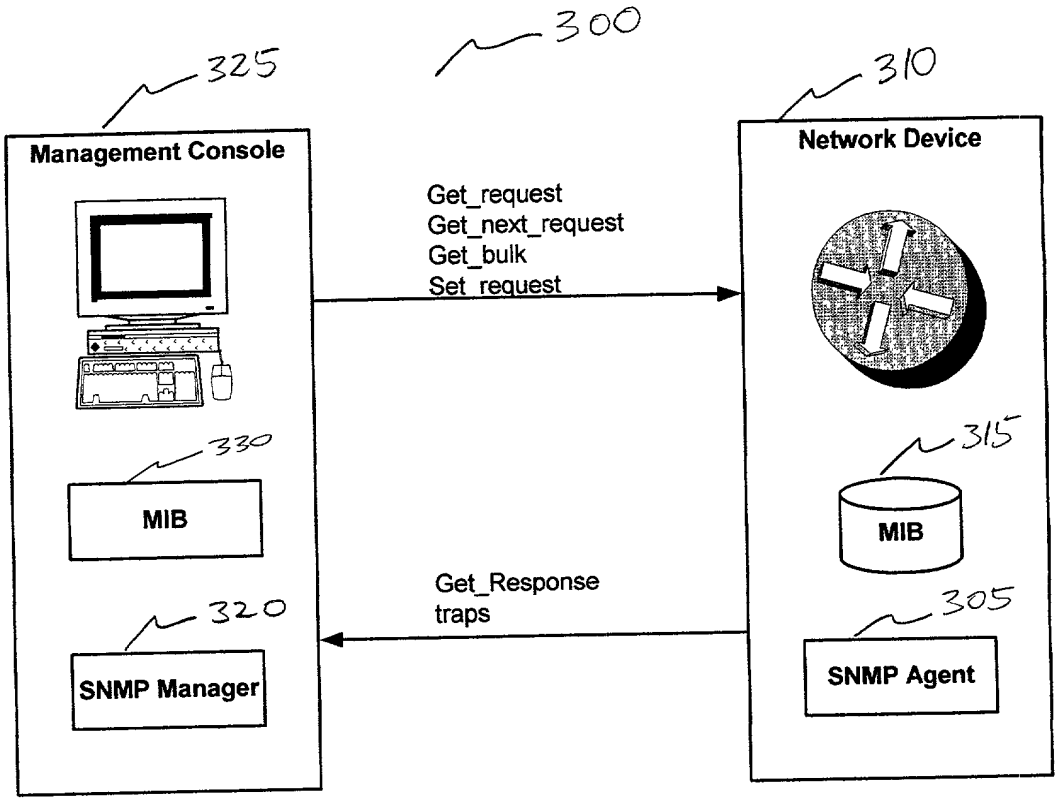

FIG. 3

Client Ref: 3189.CISCO.US.P

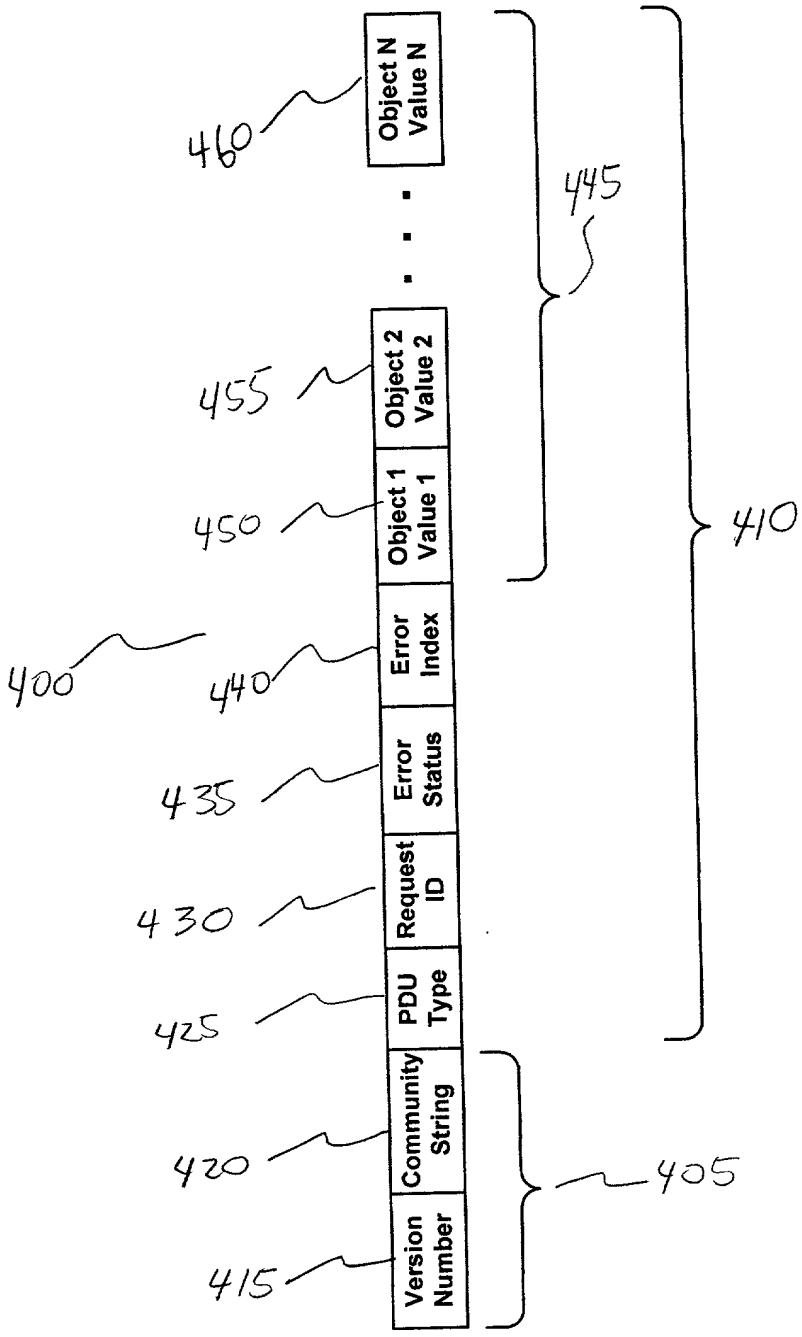
Version Number
Community String
PDU Type
Request ID
Error Status
Error Index
Object 1 Value 1
Object 2 Value 2
Object N Value N
400
405
410
415
420
425
430
435
440
445
450
455
460

FIG. 4

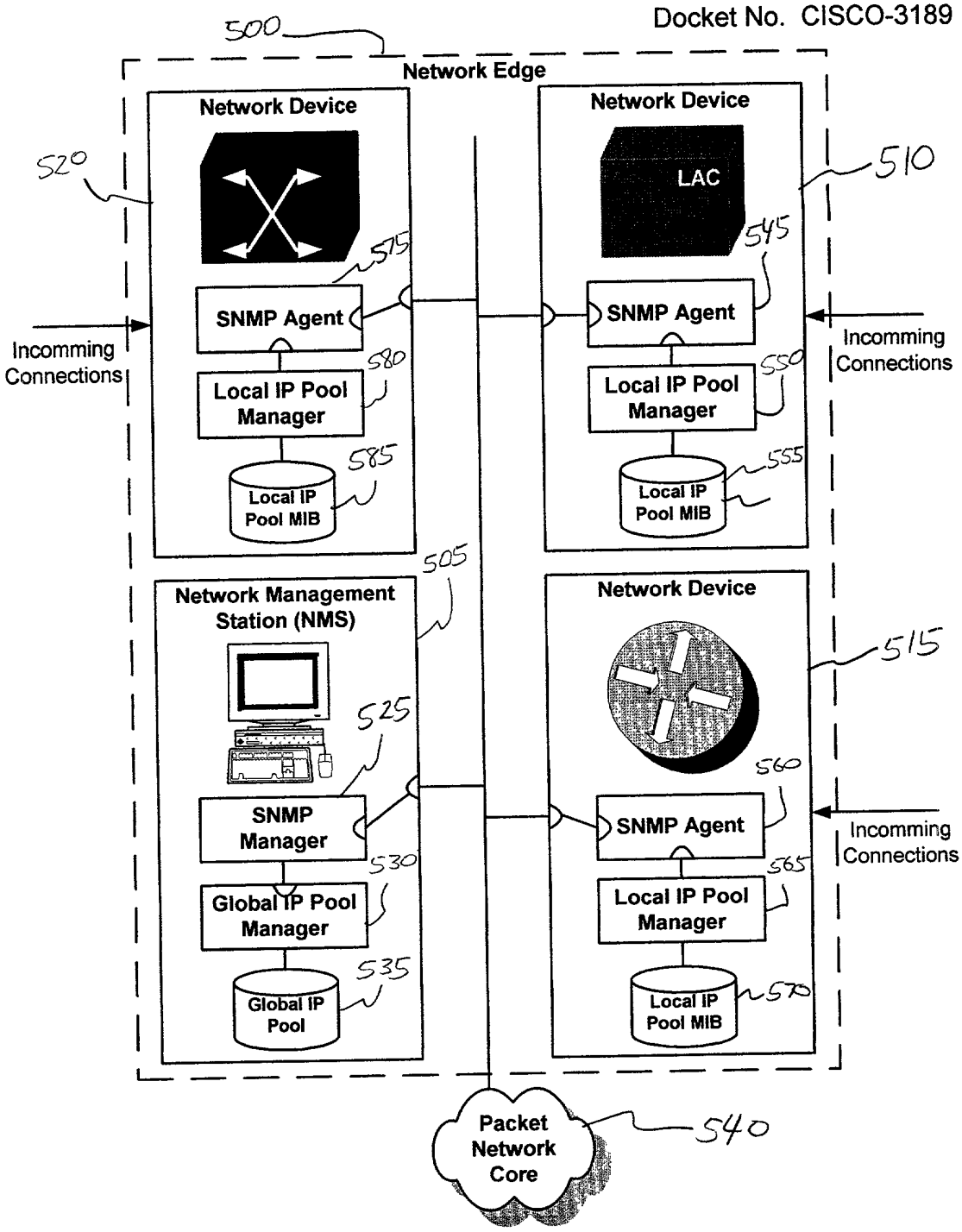
500
Network Edge
Network Device
520
575
SNMP Agent
Incomming Connections
580
Local IP Pool Manager
585
Local IP Pool MIB
Network Device
LAC
510
545
SNMP Agent
Incomming Connections
550
Local IP Pool Manager
555
Local IP Pool MIB
505
Network Management Station (NMS)
525
SNMP Manager
530
Global IP Pool Manager
535
Global IP Pool
Network Device
515
560
SNMP Agent
Incomming Connections
565
Local IP Pool Manager
570
Local IP Pool MIB
Packet Network Core
540

FIG. 5

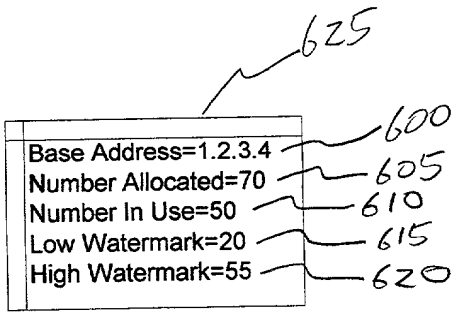

FIG. 6A

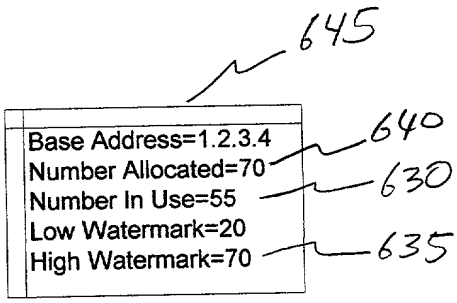

FIG. 6B

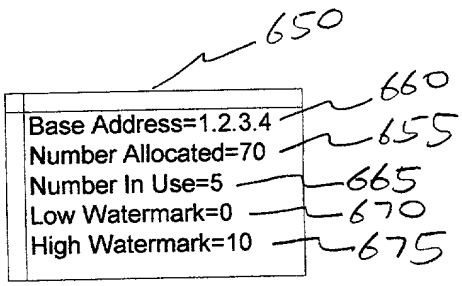

FIG. 6C

1729363014US 20060259570

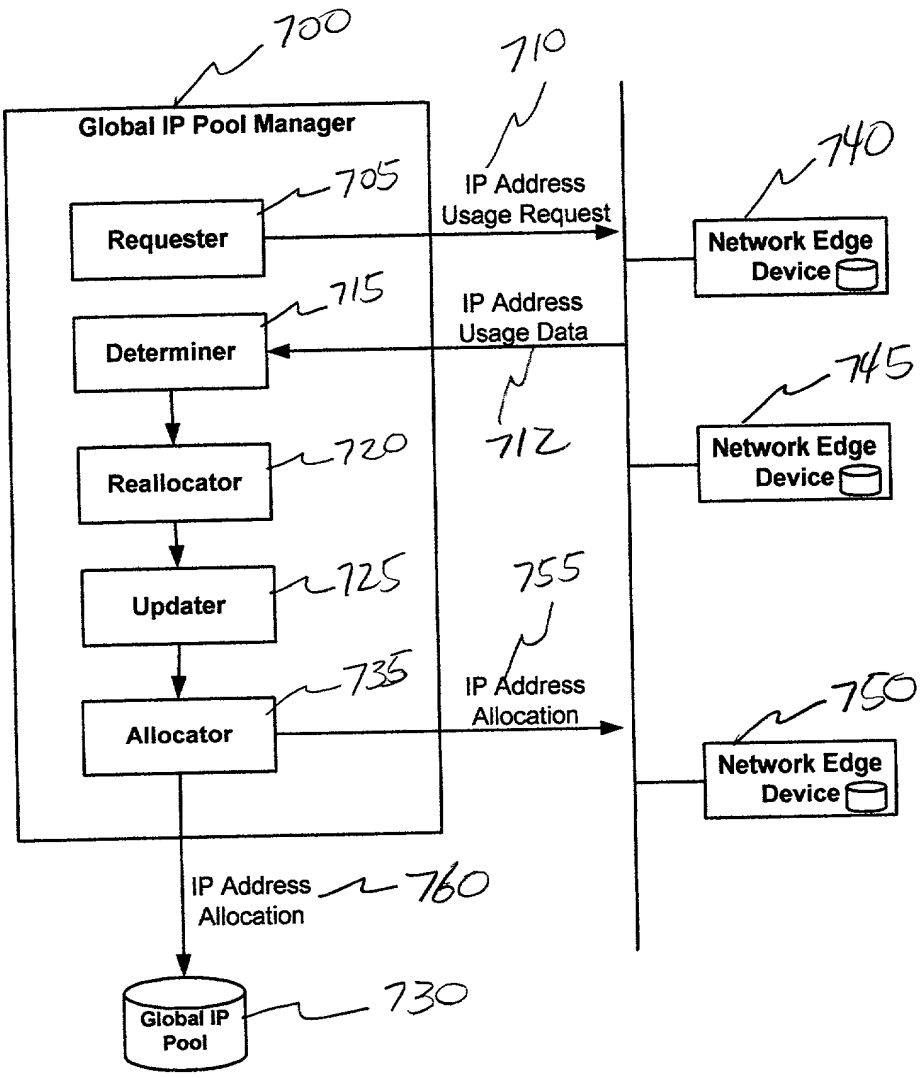

FIG. 7

DOCKET ALARM

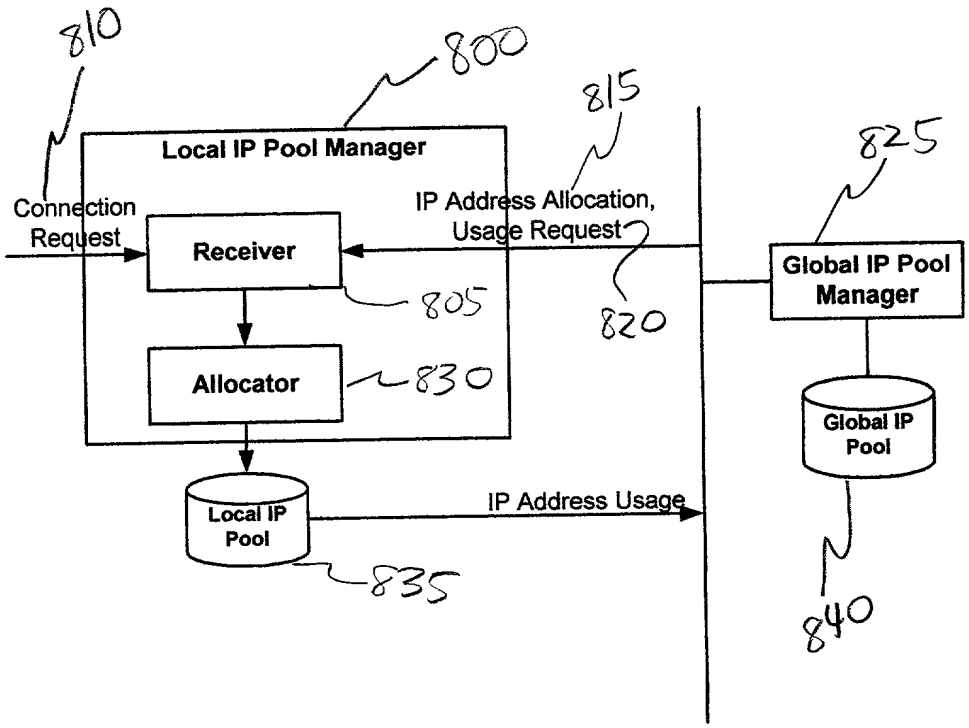
810
800
815
825
Local IP Pool Manager
Connection Request
Receiver
IP Address Allocation, Usage Request
Global IP Pool Manager
805
820
Allocator
830
Global IP Pool
Local IP Pool
IP Address Usage
835
840

FIG. 8

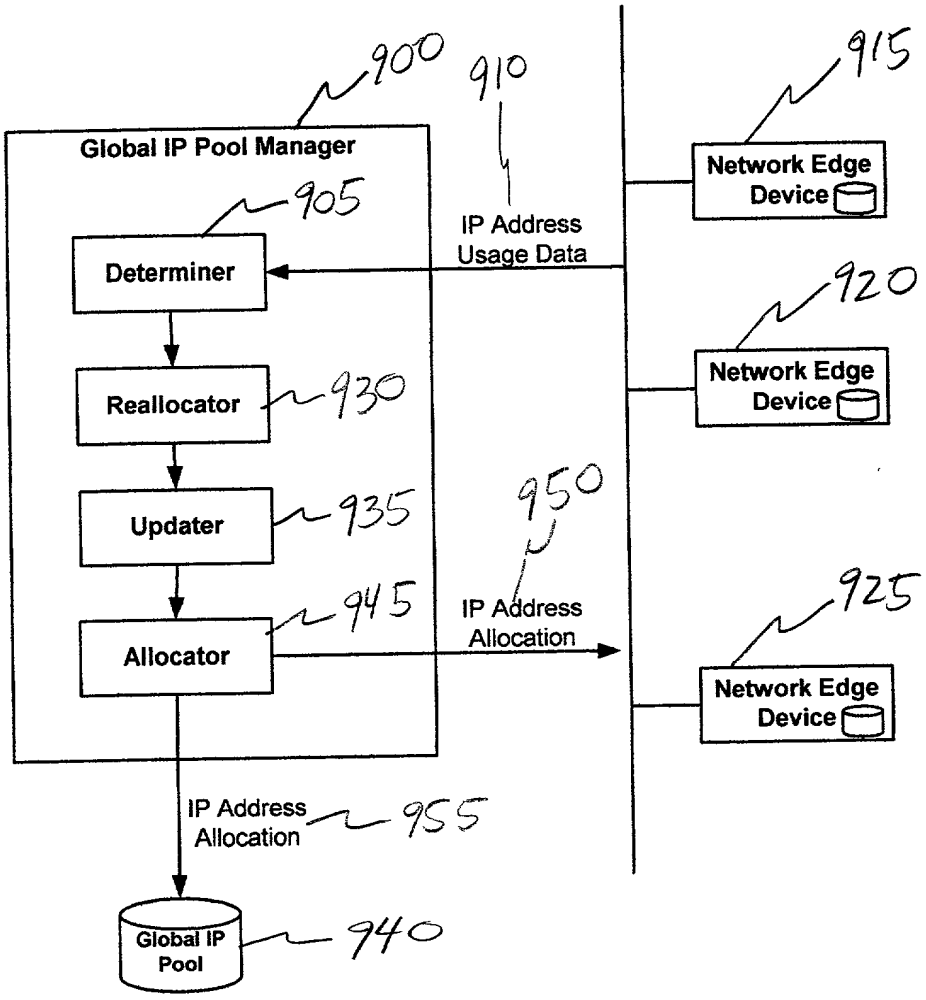
900
910
915
Global IP Pool Manager
905
Determiner
IP Address
Usage Data
Network Edge
Device
920
Reallocator
930
Network Edge
Device
Updater
935
950
945
Allocator
IP Address
Allocation
925
Network Edge
Device
IP Address
Allocation
955
Global IP
Pool
940

FIG. 9

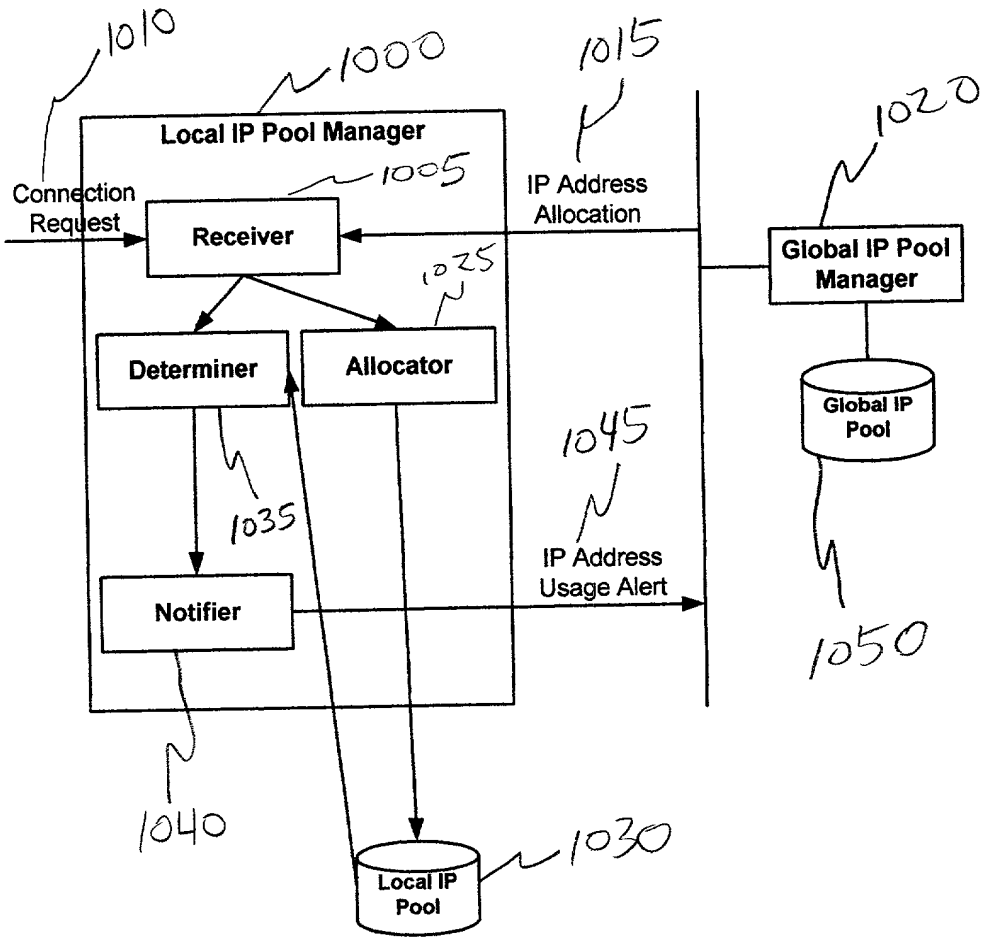
1010
1000
1015
1020
Local IP Pool Manager
1005
Connection Request
Receiver
IP Address Allocation
Global IP Pool Manager
1025
Determiner
Allocator
Global IP Pool
1045
1035
IP Address Usage Alert
Notifier
1050
1040
1030
Local IP Pool

FIG. 10

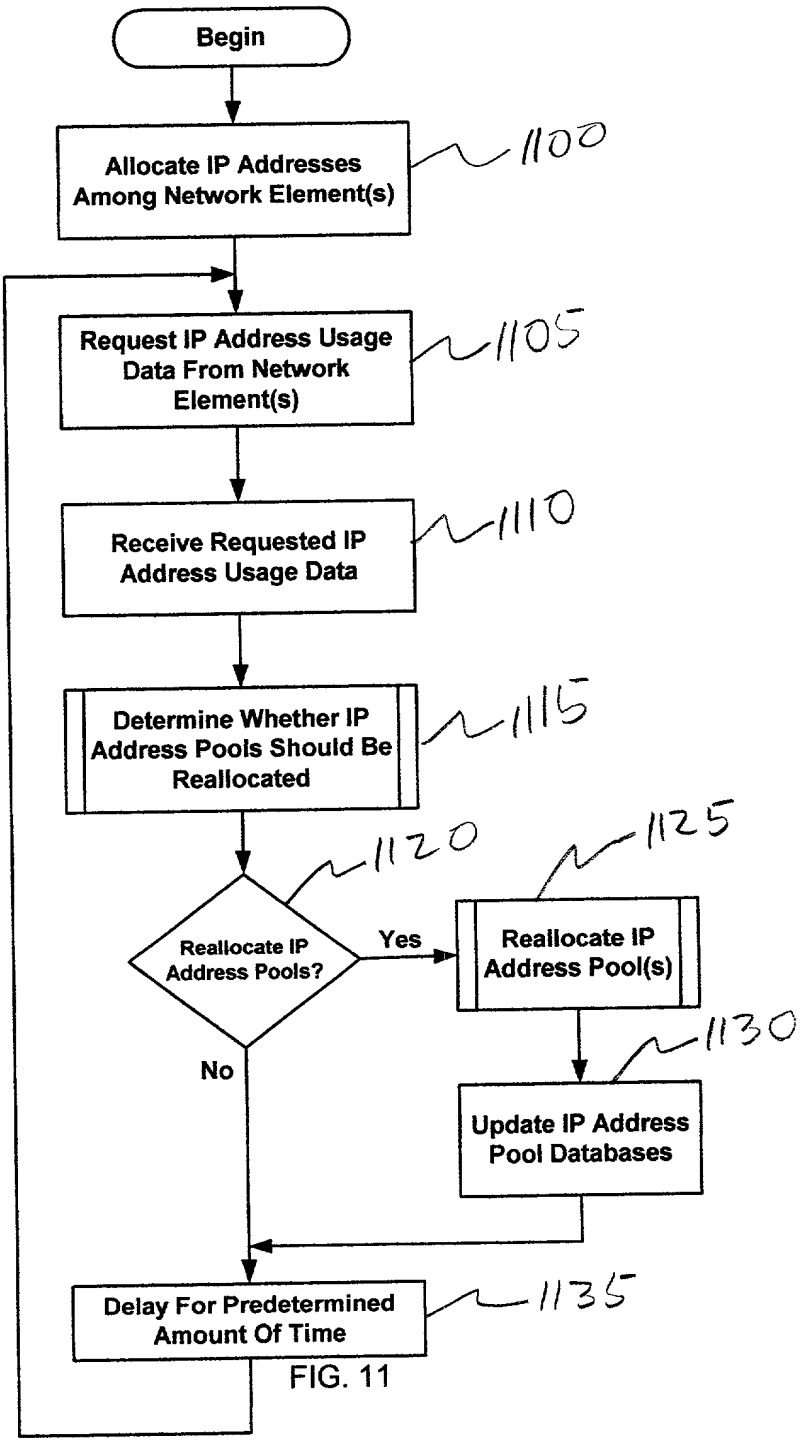

FIG. 11

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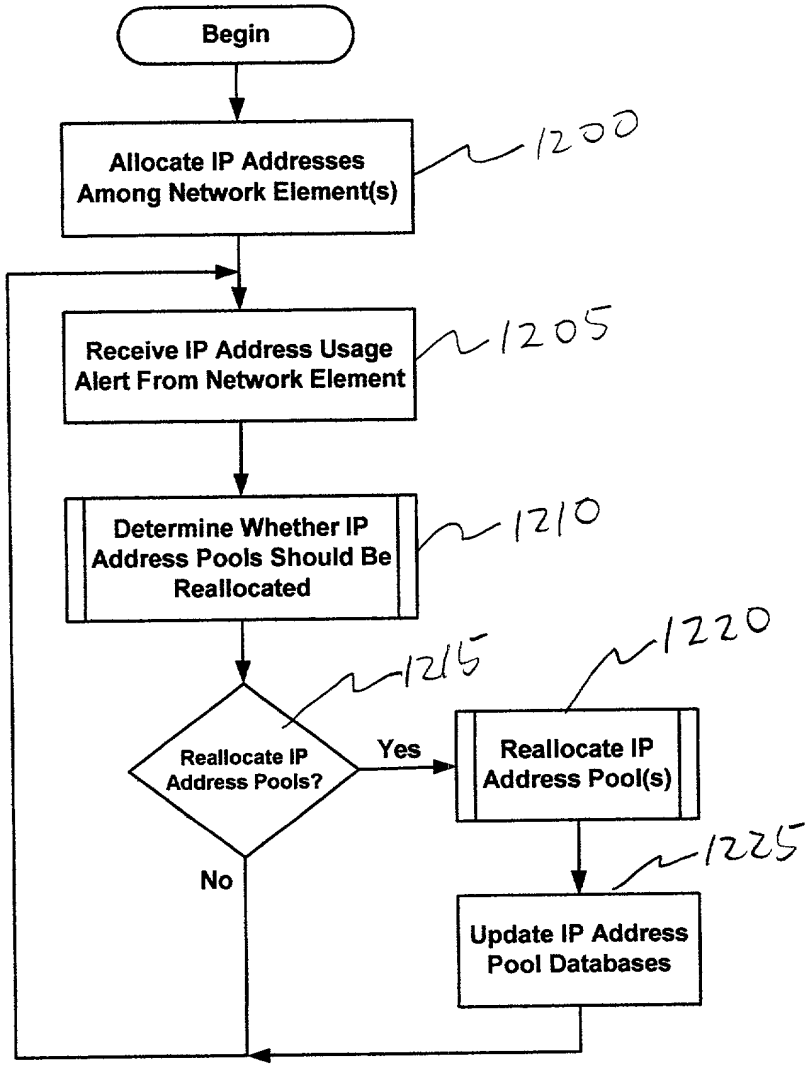
Begin
Allocate IP Addresses Among Network Element(s)
1200
Receive IP Address Usage Alert From Network Element
1205
Determine Whether IP Address Pools Should Be Reallocated
1210
Reallocate IP Address Pools?
1215
Yes
No
Reallocate IP Address Pool(s)
1220
Update IP Address Pool Databases
1225

FIG. 12

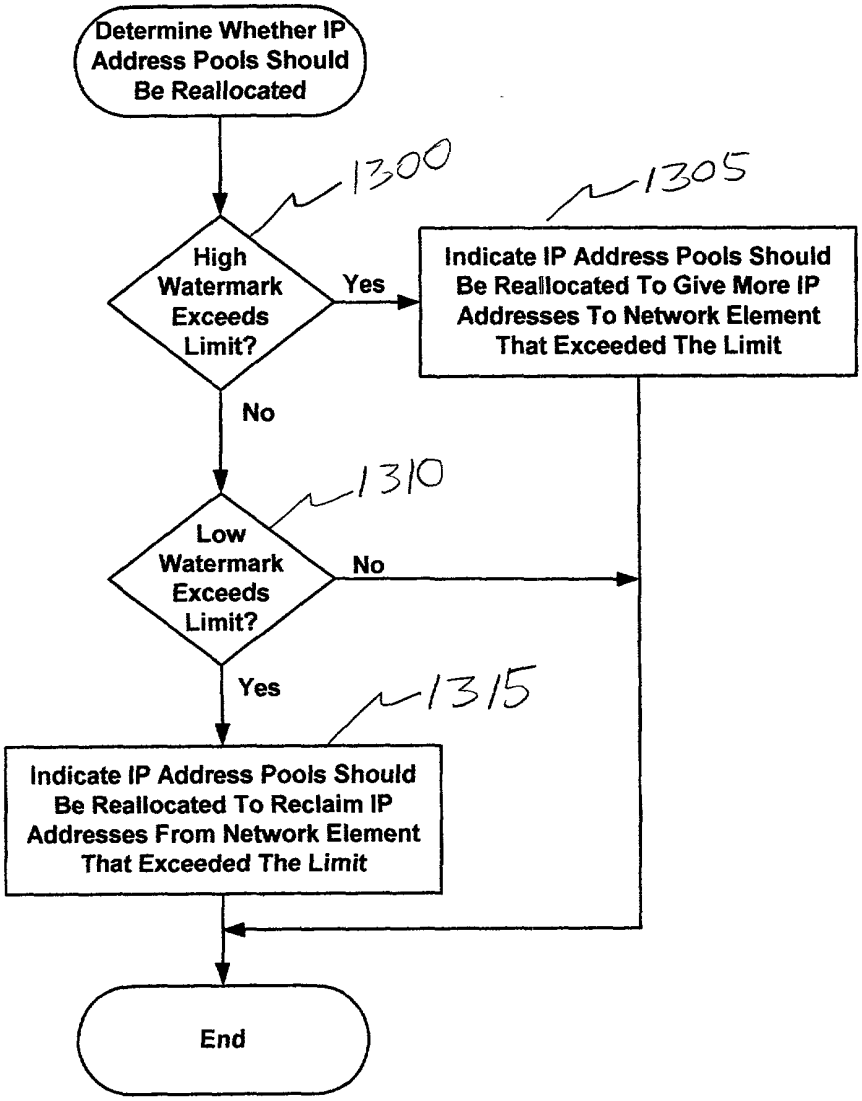

FIG. 13

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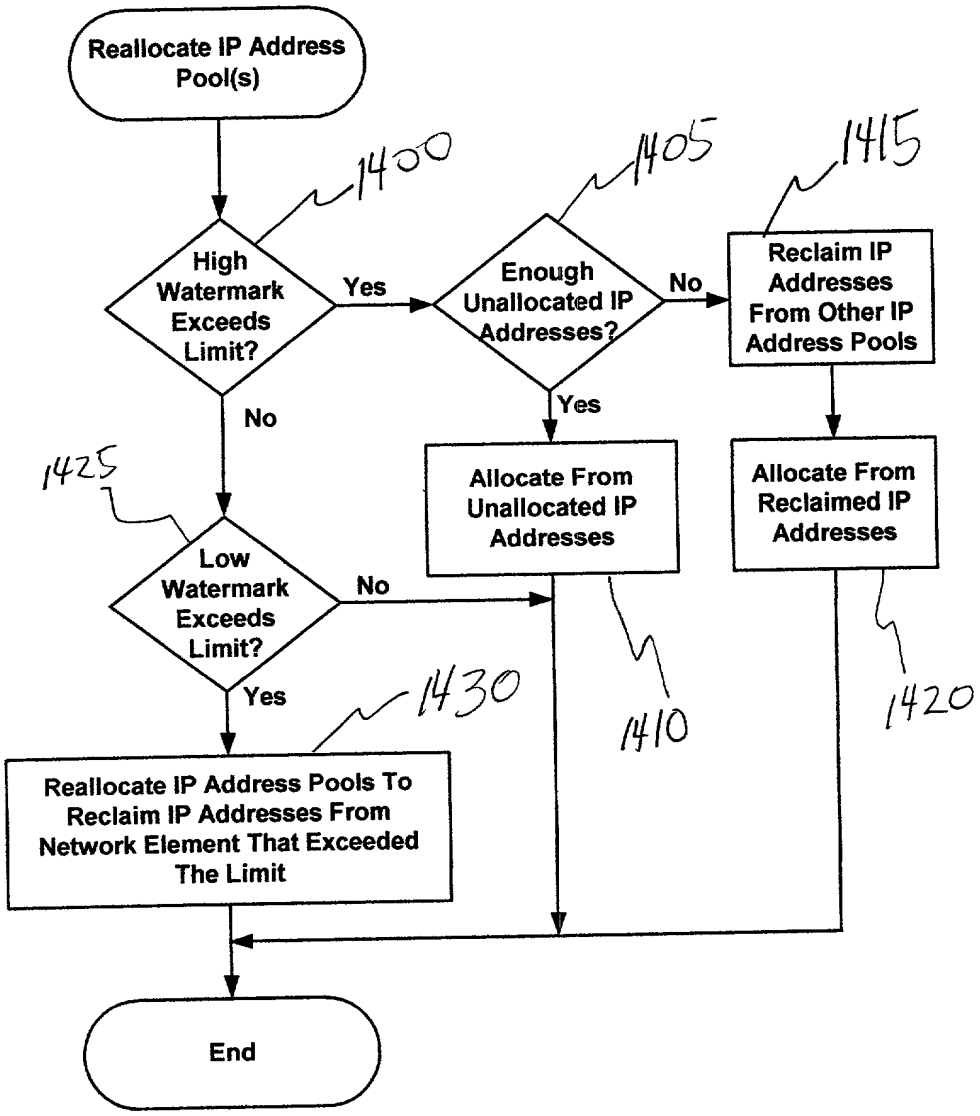
Reallocate IP Address Pool(s)
1400
High Watermark Exceeds Limit?
Yes
1405
Enough Unallocated IP Addresses?
No
1415
Reclaim IP Addresses From Other IP Address Pools
Yes
No
1425
Low Watermark Exceeds Limit?
No
Allocate From Unallocated IP Addresses
Allocate From Reclaimed IP Addresses
Yes
1430
Reallocate IP Address Pools To Reclaim IP Addresses From Network Element That Exceeded The Limit
1410
1420
End

FIG. 14

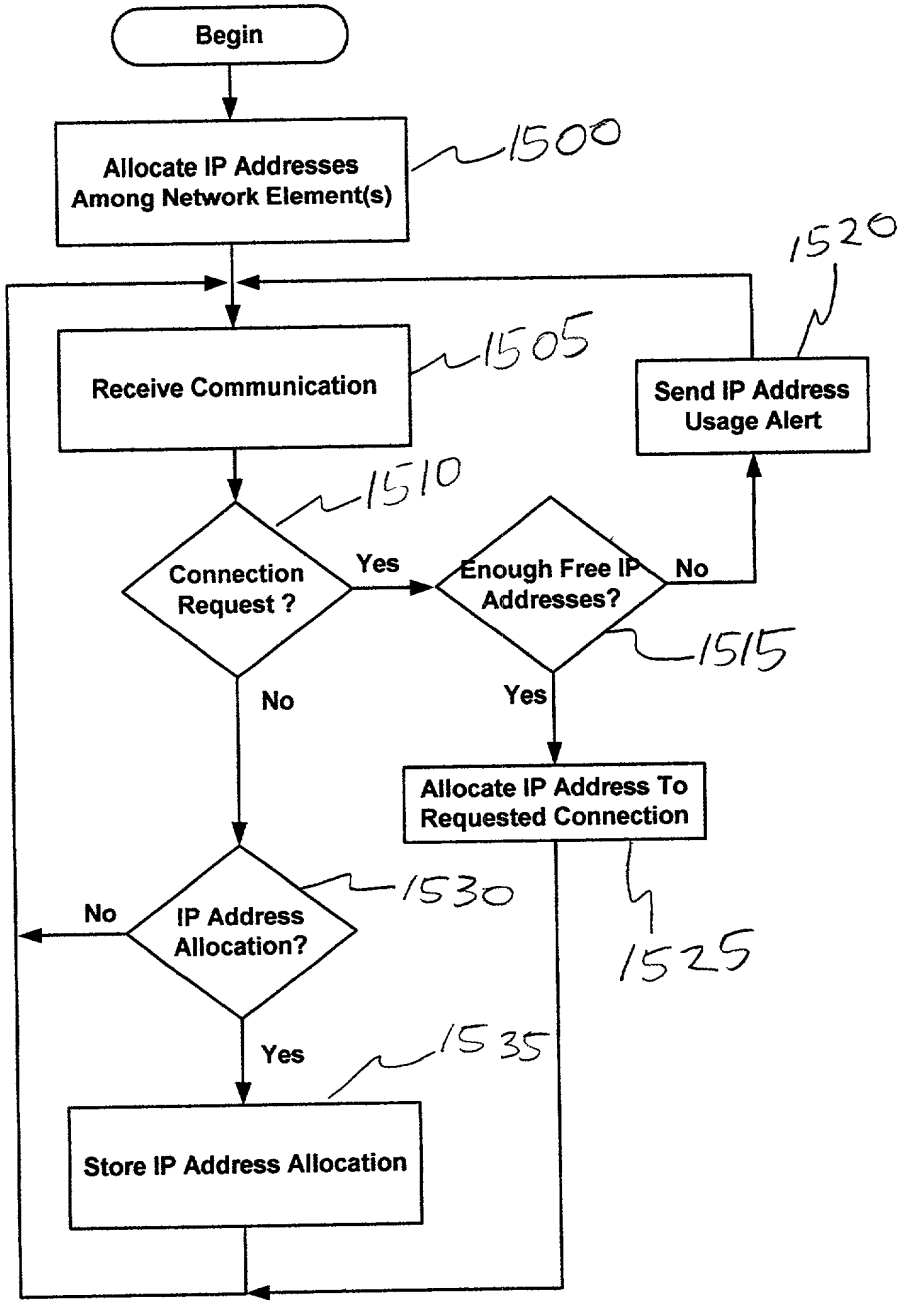
Begin
Allocate IP Addresses Among Network Element(s)
1500
Receive Communication
1505
Send IP Address Usage Alert
1520
Connection Request ?
1510
Yes
Enough Free IP Addresses?
No
1515
No
Yes
Allocate IP Address To Requested Connection
1525
IP Address Allocation?
1530
No
Yes
1535
Store IP Address Allocation

FIG. 15